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EXAMINER

RAMAKRISHNAIAH, MELUR

ART UNIT

PAPER NUMBER

2643

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/954,619

Applicant(s)

KOJOLA ET AL.

Examiner

Melur Ramakrishnaiah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15,17-22,24,25,27 and 34-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15,17-22,24,25,27 and 34-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Note: Claims 15, 17, 18, 24, 25, 27, 34 which were objected in the previous action dated 9-23-2004 has been rejected in this action following the newfound art. Examiner apologizes for any delay in the prosecution of the application because of this.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15, 17, 24, 25, 34, 37-38, 40, 41-43, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz et al. (GB 2358991, hereinafter Krentz) in view of Ichikawa et al. (EP 0946011 A2, hereinafter Ichikawa) and Bannerman (US PAT: 4,001,696).

Regarding claim 15, 17, Krenz discloses an integrated broadcast reception system for use in a handheld telecommunications device for receiving broadcast signals, wherein the hand-held telecommunications device has a device body, the reception system comprising: an electrically non-conductive substrate in (12, fig. 1) located inside the device body (12), an electrically conductive element (20, fig. 1), disposed on the substrate, for receiving the broadcast signals, and signal processing module (28, fig. 2) disposed on the substrate adjacent and electronically connected to one end of the electrically conductive element, responsive to the received signals, for processing the received signals (figs. 1, 7, page3, line 25 – page 7, line 28).

Regarding claim 24, 25, 34, Krenz discloses a mobile phone capable of receiving broadcast signals, comprising: a housing (figs. 5-6), an internal broadcast reception system (fig. 1), disposed with in the housing, wherein the reception system comprises: an electrically non-conductive substrate in (12, fig. 1) located inside the body, an electrically conductive element (20, figs. 1, 7), disposed on the substrate, for receiving the broadcast signals, and a signal processing module (28, fig. 1) disposed on the substrate adjacent and electronically connected to one of the electrically conductive element, responsive to received signals, for providing pre-processed signals, and means (26/32, fig. 1) responsive to the pre-processed signals, for providing audio signals indicative of broadcast signals (figs. 1, 7, page3, line 25 – page 7, line 28).

Krenz differs from claims 15, 17, 24-25, 34, 41-43 in that he does not teach the following: broadcast signals are frequency modulated, broadcast signals are digital broadcast signals, signal processing module for selecting broadcast frequency band and wherein broadcast signals are substantially in a frequency range of 88 MHz – 108 MHz/53 MHz-99 MHz.

However, Ichikawa discloses receiver for digital audio broadcast programs and FM broadcast programs which teaches the following: broadcast signals are frequency modulated, broadcast signals are digital broadcast signals, signal processing module for selecting broadcast frequency band (col. 3 lines 35-50); and Bannerman discloses an electronic antenna which teaches the following broadcast signals are substantially in a frequency range of 88 MHz – 108 MHz/53 MHz-99 MHz (col. 1 lines 48-54).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Krenz's system to provide for the following: broadcast signals are frequency modulated, broadcast signals are digital broadcast signals, signal processing module for selecting broadcast frequency band as this arrangement would facilitate the user to receive digital broadcast and FM broadcast signals as taught by Ichikawa, thus providing user with choice to receive required broadcast signals which give better quality signals to the user to enjoy; and wherein broadcast signals are substantially in a frequency range of 88 MHz – 108 MHz/53 MHz-99 MHz as this arrangement would provide for receiving different frequency range broadcast signals as taught by Bannerman.

Regarding claims 37-38, 40, 47 Krentz further teaches the following: chassis within the housing for disposing the providing means, wherein the hand-held telecommunication device includes a chassis, and wherein the electrically non-conductive substrate is part of a chassis, the electrically non-conductive substrate is made of a rigid material mechanically linked to the chassis and the integrated broadcast reception system is electronically linked to the chassis, electrically conductive element has a meandering or wound shape for reducing the size of the electrically non-conductive substrate, electrically conductive element is disposed on at least one side of the electrically non-conductive substrate (figs. 1, 7).

3. Claims 19-22, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Ichikawa and Bannerman as applied to claims 15, 24 above, and further in view of Shingematsu (EP 057612A2, hereinafter Shingematsu).

Regarding claims 19-22, 35-36, the combination does not teach the following: signal processing module comprises an active circuit, responsive to the received signals, for providing amplified signals, active circuit is controllable for adjusting the gain of the amplified signals, signal processing module comprises a band-tuning circuit, responsive to received signals for selecting broadcast frequency for providing band-tuned circuits, signal processing module further comprises an amplification device, responsive to the band-tuned signals, for providing amplified signals, wherein broadcast signals are frequency modulated and where the providing means comprises tuning circuit for selecting a broadcast channel in a broadcast frequency band for providing further signals indicative of the broadcast of the selected channel, providing means further comprises a converter, responsive to the further signals, for providing audio signals.

However, Shingematsu discloses digital broadcast receiver which teaches the following: signal processing module comprises an active circuit, responsive to the received signals, for providing amplified signals, active circuit is controllable for adjusting the gain of the amplified signals, signal processing module comprises a band-tuning circuit, responsive to received signals for selecting broadcast frequency for providing band-tuned circuits, signal processing module further comprises an amplification device, responsive to the band-tuned signals, for providing amplified signals, wherein broadcast signals are frequency modulated and where the providing means comprises tuning circuit for selecting a broadcast channel in a broadcast frequency band for providing further signals indicative of the broadcast of the selected

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channel, providing means further comprises a converter, responsive to the further signals, for providing audio signals (fig. 7, col. 8, line 39 – col. 10, line 12).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for the following: signal processing module comprises an active circuit, responsive to the received signals, for providing amplified signals, active circuit is controllable for adjusting the gain of the amplified signals, signal processing module comprises a band-tuning circuit, responsive to received signals for selecting broadcast frequency for providing band-tuned circuits, signal processing module further comprises an amplification device, responsive to the band-tuned signals, for providing amplified signals, wherein broadcast signals are frequency modulated and where the providing means comprises tuning circuit for selecting a broadcast channel in a broadcast frequency band for providing further signals indicative of the broadcast of the selected channel, providing means further comprises a converter, responsive to the further signals, for providing audio signals as this arrangement would provide necessary means for processing the broadcast signals selected for listening as taught by Shingematsu, thus providing user convenience to enjoy broadcast signals.

4. Claims 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Ichikawa and Bannerman as applied to claims 15 and 17 above, and further in view of Casel (WO 98/49742).

Regarding claims 44-45, the combination does not teach the following: physical length of the electrically non-conductive substrate is smaller than the quarter-wavelength of the received signal.

However, Casel discloses an antenna for radio communications which teaches the following: physical length of electrically conductive element is substantially smaller than a quarter wavelength of the received signals, the physical length of the electrically non-conductive substrate is substantially smaller than quarter-wavelength of the received signals (fig. 2, page 3 line 36, page 4 lines 1-3).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for the following: physical length of electrically conductive element is substantially smaller than a quarter wavelength of the received signals, the physical length of the electrically non-conductive substrate is substantially smaller than quarter-wavelength of the received signals as this arrangement would facilitate to obtain the system to meet the requirements for the applications intended for as taught by Cassel.

5. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Ichikawa and Bannerman as applied to claim 17 above, and further in view of Auriol (US PAT: 5,134,422).

Regarding claim the combination does not teach the following: electrically conductive element has a helical shape.

However, Auriol discloses Helical type antenna which teaches the following: electrically conductive element has a helical shape (fig. 2, col. 3 lines 41-55).



Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for the following: electrically conductive element has a helical shape as this arrangement would provide another means for processing the broadcast signals as taught by Auriol.

6. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Ichikawa and Bannerman as applied to claim 24 above, and further in view of Lathi (US PAT: 6,028,567).

The combination differs from claim 39 in that although he teaches substrate material mechanically linked to the chassis and integrated broadcast system is electronically linked to the chassis as shown in fig. 7 of Krentz, it does not teach the following: substrate material is made of a flexible material.

However, Lahti discloses antenna for a mobile station operating in two frequency ranges which teaches the following: electrically non-conductive substrate is made of flexible material (col. 4 lines 43-46).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for the following: electrically non-conductive substrate is made of flexible material as this arrangement would provide another means for compact arrangement of antenna in mobile station as taught by Lahti.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Ichikawa and Baker (US PAT: 4,409,688).

Regarding claim 18, Krentz discloses an integrated broadcast reception system for use in a handheld telecommunications device for receiving broadcast signals, wherein the hand-held telecommunications device has a device body, the reception system comprising: an electrically non-conductive substrate in (12, fig. 1) located inside the device body (12), an electrically conductive element (20, fig. 1), disposed on the substrate, for receiving the broadcast signals, and signal processing module (28, fig. 2) disposed on the substrate adjacent and electronically connected to one end of the electrically conductive element, responsive to the received signals, for processing the received signals (figs. 1, 7, page 3, line 25 – page 7, line 28).

Kerntz differs from claim 18 in that he does not teach the following: broadcast signals are digital broadcast signals where signals are substantially in a frequency range of 200 MHz.

However, Ichikawa teaches the following: broadcast signals are digital broadcast signals (col. 3 lines 35-50); and Baker teaches the following: broadcast signals are substantially in a frequency range of 200 MHz (col. 38 lines 1-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Krenz's system to provide for the following: broadcast signals are digital broadcast signals as this arrangement would facilitate the user to receive digital broadcast and FM broadcast signals as taught by Ichikawa, thus providing user with choice to receive required broadcast signals which give better quality signals to the user to enjoy; and wherein broadcast signals are substantially in a

frequency of 200 MHz as this arrangement would provide for receiving different frequency range broadcast signals as taught by Baker.

8. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Ichikawa and Baker as applied to claim 18 above, and further in view of Casel.

Regarding claim 46, the combination does not teach the following: physical length of the electrically non-conductive substrate is smaller than the quarter-wavelength of the received signal.

However, Casel discloses an antenna for radio communications which teaches the following: physical length of electrically conductive element is substantially smaller than a quarter wavelength of the received signals, the physical length of the electrically non-conductive substrate is substantially smaller than quarter-wavelength of the received signals (fig. 2, page 3 line 36, page 4 lines 1-3).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for the following: physical length of electrically conductive element is substantially smaller than a quarter wavelength of the received signals, the physical length of the electrically non-conductive substrate is substantially smaller than quarter-wavelength of the received signals as this arrangement would facilitate to obtain the system to meet the requirements for the applications intended for as taught by Cassel.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krentz in view of Baker.

Regarding claim 27, Krentz discloses a mobile phone capable of receiving broadcast signals, comprising: a housing (figs. 5-6), an internal broadcast reception system (fig. 1), disposed within the housing, wherein the reception system comprises: an electrically non-conductive substrate (12, fig. 1) located inside the body, an electrically conductive element (20, figs. 1, 7), disposed on the substrate, for receiving the broadcast signals, and a signal processing module (28, fig. 1) disposed on the substrate adjacent and electronically connected to one of the electrically conductive element, responsive to received signals, for providing pre-processed signals, and means (26/32, fig. 1) responsive to the pre-processed signals, for providing audio signals indicative of broadcast signals (figs. 1, 7, page 3, line 25 – page 7, line 28).

Krentz differs from claim 27 in that he does not teach the following: broadcast signals are substantially in a frequency range of 200 MHz.

However, Baker teaches the following: broadcast signals are substantially in a frequency range of 200 MHz (col. 38 lines 1-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Krentz's system to provide for the following: broadcast signals are substantially in a frequency of 200 MHz as this arrangement would provide for receiving different frequency range broadcast signals as taught by Baker.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 15, 17, 18, 24, 25, 27, 39 and their dependent claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melur Ramakrishnaiah whose telephone number is (571)272-8098. The examiner can normally be reached on 9 Hr schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Melur Ramakrishnaiah  
Primary Examiner  
Art Unit 2643